

# **PSYC\*4600, Course Outline: Winter 2017**

## **General Information**

**Course Title:** Cognitive Neuroscience

### **Course Description:**

This course will focus heavily on reviewing and discussing primary research, with the goal of revealing the types of methods that cognitive neuroscientists use, and types of questions that they ask, as they try to understand the relationship between our minds and brains.

**Credit Weight:** 0.5 Credits

**Academic Department (or campus):** Psychology

**Semester Offering:** Winter 2017

**Class Schedule and Location:** Wed and Fri, 10-11:20am, in MCKN229

## **Instructor Information**

Instructor Name: Naseem Al-Aidroos

Instructor Email: Please see Course Policy on Contacting the Instructor or TA. This email is for emergency contact only: naseem@uoguelph.ca

Office location and office hours: MacKinnon Extension 4018, office hours Tues and Wed, 2-3pm

## **GTA Information**

GTA Name: TBA

GTA Email: See Course Policy on Contacting the Instructor or TA: TBA

GTA office location and office hours: TBA on CourseLink after each test.

## **Course Content**

### **Specific Learning Outcomes:**

By the end of this course, students should be able to:

1. Recall the major discoveries in the field of cognitive neuroscience and explain how, together, these discoveries inform our current understanding of the mind and brain.
2. Explain the questions that researchers posed to make these discoveries, and how the questions were eventually answered using cognitive neuroscience paradigms.
3. Predict, based on past research, the results of hypothetical experiments.
4. Find research articles reporting cognitive neuroscience discoveries, and assess the quality of the contribution made by a given article.

5. Understand and evaluate the methodologies employed by cognitive neuroscientists.
6. Describe how the data reported by cognitive neuroscientists relates to the conclusions they made about the mind and brain.
7. Provide accurate written descriptions summarizing cognitive neuroscience research.
8. Independently read and understand cognitive neuroscience literature.
9. Differentiate between researchers (and university instructors) claims that are well founded on scientific research from those that are not (even if they sound plausible).
10. Appreciate the ethical decisions involved in cognitive neuroscience research, and why different people come to different conclusions.

**Lecture Content:**

Date	Topics and in-class test dates
Jan 11	Introduction
Jan 13	Overview of the brain
Jan 18	Methods: Imaging (focus on fMRI)
Jan 20	Methods: Electrophysiology (focus on EEG/ERP)
Jan 25	Methods: Stimulation (focus on TMS)
Jan 27	<b>TEST 1</b>
Feb 1	Perception: Low-level vision
Feb 3	Perception: High-level vision
Feb 8	Attention: Spatial
Feb 10	Attention: Feature/object
Feb 15	Attention: Bottom-up
Feb 17	<b>TEST 2</b>
	<b>Winter Break</b>
Mar 1	Working Memory
Mar 3	Executive Function
Mar 8	Analysis: Connectivity
Mar 10	Episodic Memory: Encoding and Retrieval
Mar 15	Episodic Memory: Consolidation and Reconsolidation
Mar 17	<b>TEST 3</b>
Mar 22	Analysis: Classification
Mar 24	Emotion
Mar 29	Consciousness
Mar 31	Analysis: Intra-individual Variability
Apr 5	Interactions Across Cognition
Apr 7	<b>TEST 4</b>

## Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Test 1	Jan 27	28% (best 3 of 4)	1-3, 5-10
Test 2	Feb 17	28% (best 3 of 4)	1-3, 5-10
Test 3	Mar 17	28% (best 3 of 4)	1-3, 5-10
Test 4	Apr 7	28% (best 3 of 4)	1-3, 5-10
Presentation	See Below	16%	1, 2, 4-6, 8, 9

### Additional Notes (if required):

**In-class tests:** The objective of the tests is to allow you to demonstrate that you have gained the relevant knowledge about the function of our minds and brains, and that you can synthesize this knowledge to make predictions about unanswered questions in cognitive neuroscience. The tests will contain both multiple-choice and written-answer questions. Test questions will cover lecture material and assigned readings and videos; questions will NOT be drawn from student presentations. Tests are not cumulative. Your final grade for the test component of the course is based on the average of your best three tests (i.e., the worst grade is dropped). Please see note about missed tests below.

**Presentation:** Every student is required to complete one in-class presentation. Students will sign-up for their presentation date. Full details on the presentation will be available through CourseLink.

**Final examination date and time:** N/A

**Final exam weighting:** 0%

## Course Resources

### Other Resources:

#### Assigned Readings:

There is no course textbook. All assigned readings are primary research articles, and are available through CourseLink. The assigned readings are designed to help you develop:

- Your ability to process journal articles, which are the most reliable source for staying up to date with research
- Your ability to think independently. Many of the assigned readings will not be discussed in class, but will be tested through the in-class tests. Your challenge is to figure out how

to make sense of these articles, including when the article is incomprehensible (i.e. Biswal et al.; 1995).

**CourseLink:**

- Copies of the lecture slides will be posted to CourseLink by 7am on the morning of each lecture, at the latest.
- Grades for all in class tests will be shared through CourseLink. As soon as grades are posted, I will add an announcement to the CourseLink News Feed.
- It is your responsibility to periodically verify your grades on CourseLink

## **Course Policies**

### **Contacting the Instructor or TA**

To help your instructor and TA stay on top of answering your questions, please use the following procedures when contacting us:

- The fastest way to get a response to simple questions is through the class discussion board on CourseLink. By simple, I mean questions that only require a sentence or two to answer. The TA and I check the board every weekday, and you are encouraged to respond to each other's posts.
- Longer questions, and questions of a confidential nature, should be brought to my office hours (times listed above). I'm always happy to have visitors, so take as much advantage of these office hours as you can!
- Please direct questions about test grading to the TA during their office hours (announced on CourseLink).
- My email is to be used for emergencies only.

### **Grading Policies**

Missed Tests or Presentations: This course uses frequent in-class tests, which affords you the opportunity to drop your worst test mark. The tradeoff is that there are no make-up tests, because make-up tests could delay the grading process and prevent the instructor/TA from returning test grades in a timely fashion. The first time you miss a test this will be treated as your worst test grade that is dropped—you do NOT need to provide documentation, nor inform the instructor. Additional missed tests, and also missed presentations, will be given a grade of 0 and count toward your final grade unless appropriate documentation is provided within one week to the instructor as evidence of illness or compassionate circumstances.

### **Course Policy regarding use of electronic devices and recording of lectures:**

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

## **University Policies**

### **Academic Consideration**

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for

Academic Consideration:

[Academic Consideration, Appeals and Petitions](#)

### **Academic Misconduct**

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

[Academic Misconduct Policy](#)

### **Accessibility**

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact [Student Accessibility Services](#) as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email [csd@uoguelph.ca](mailto:csd@uoguelph.ca) or see the website: [Student Accessibility Services Website](#)

### **Course Evaluation Information**

Please refer to the [Course and Instructor Evaluation Website](#) .

**Drop date**

The last date to drop one-semester courses, without academic penalty, is March 10<sup>th</sup>, 2017. For regulations and procedures for Dropping Courses, see the Academic Calendar:

[Current Undergraduate Calendar](#)

**Additional Course Information**

None